



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,454	12/04/2003	Larry J. Buchanan	2003-IP-010346UI	7141

7590 07/14/2005

Robert A. Kent
Halliburton Energy Services
2600 S. 2nd Street
Duncan, OK 73536-0440

EXAMINER

FULLER, BRYAN A

ART UNIT	PAPER NUMBER
----------	--------------

3676

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/727,454

Applicant(s)

BUCHANAN ET AL.

Examiner

Bryan A. Fuller

Art Unit

3676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 43 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 - 43 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 6, 8 – 13, 15 – 19, and 21 – 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zupanick et al (6,425,448) in view of McDaniel et al (5,547,023).

With respect to claims 1, 11, 24, 29, and 34: Zupanick et al teaches in column 5, lines 1 – 48 and column 13, lines 39 – 64 a method for producing gas by drilling at least one substantially vertical well bore intersecting the coal seam, drilling a plurality of substantially horizontal well bores disposed substantially within the coal seam and exiting from the at least one substantially vertical well bore, wherein the plurality of substantially horizontal well bores is spaced to maximize interference between the substantially horizontal well bores. Zupanick et al does not teach the method of fracturing the coal seam along the plurality of substantially horizontal well bores using a hydrazetting tool to produce a plurality of fractures, wherein the plurality of fractures is spaced to maximize interference between the fractures and wherein the plurality of fractures enhances the production of gas from the coal seam of the subterranean formation. Additionally, Zupanick et al does not teach the step of casing or lining the plurality of horizontal well bores. McDaniel et al teaches in column 1, line 21 – column

Art Unit: 3676

2, line 60 a method of fracturing along horizontal well bores using a hydrajetting tool to produce a plurality of fractures, wherein the plurality of fractures is spaced to maximize interference between the fractures and wherein the plurality of fractures enhances the production from the subterranean formation.

With respect to claims 2, 15, 24, 29, and 34: Zupanick et al also teaches in column 10, lines 37 – 47 the method comprising the step of casing the at least one substantially vertical well bore.

With respect to claims 6, 19, 24, 29, and 34: Zupanick et al also teaches in column 9, lines 14 – 20 the step of inserting logging equipment into the at least one substantially vertical well bore.

With respect to claims 3 – 4, 16 – 17, 24, 29, and 34: McDaniel et al also teaches in column 6, lines 6 – 17 the step of casing or lining the plurality of substantially horizontal well bores.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Zupanick et al's invention in view of McDaniel et al's method and line or case the horizontal well bores and fracture the coal seam along the plurality of substantially horizontal well bores using a hydrajetting tool to produce a plurality of fractures, wherein the plurality of fractures is spaced to maximize interference between the fractures and wherein the plurality of fractures enhances the production of gas from the coal seam of the subterranean formation. The motivation for this combination is that it allows a poorly consolidated or otherwise unstable formation to be completed in a manner whereby wellbore stability problems are avoided.

With respect to claims 5, 18, 25, 30, and 35: Zupanick et al also teaches in column 10, lines 17 – 25 the step of removing water from the coal seam of the subterranean formation.

With respect to claims 12 and 13: Zupanick et al also teaches in column 16, lines 1 – 24 and in Fig. 12 a plurality of horizontal well bores arranged in at least two fork patterns, wherein the at least two fork patterns are opposed.

With respect to claims 8, 21, 26, 31, and 36: Zupanick et al also teaches in column 10, lines 31 – 47 and in Fig. 8 a method where at least one substantially vertical well bore terminates at or above the coal seam.

With respect to claims 9, 22, 27, 32, and 37: Zupanick et al also teaches in column 14, lines 58 – 62 and in Fig. 11 a method where at least one substantially vertical well bore terminates below the coal seam.

With respect to claims 10, 23, 28, 33, and 38: Zupanick et al also teaches in column 10, lines 40 – 45 and in Fig. 8 a method further comprising an additional step of plugging the at least one substantially vertical well bore at or above the coal seam before the step of drilling at least one substantially horizontal well bore.

3. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zupanick et al and McDaniel et al as applied to claims 1 and 11 above, and further in view of Milne et al (US 2002/0170712).

With respect to claims 7 and 20: Zupanick et al and McDaniel et al teach the features as claimed except for the use of logging equipment in the horizontal well bore. Milne et al teaches in paragraphs [0001] – [0006] the step of inserting logging

Art Unit: 3676

equipment in the horizontal well bore. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Zupanick et al's method and McDaniel et al's method and insert logging equipment in the horizontal well bore in view of the teachings of Milne et al. The motivation for this combination is that it allows the oil/gas producer to assess the potential output of the well and where to perforate.

4. Claims 14, and 39 – 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zupanick et al and McDaniel et al as applied to claims 11 and 24 - 38 above, and further in view of Gardes (US 2003/0062198).

With respect to claims 14 and 39 – 43: Zupanick et al and McDaniel et al teach the features as previously claimed except for where the plurality of substantially horizontal well bores is arranged in a radial pattern. Gardes teaches in Figs. 10 – 12 and in column 9, lines 18 – 42 a method where the plurality of substantially horizontal well bores is arranged in a radial pattern. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Zupanick et al's method and McDaniel et al's method and create a plurality of substantially horizontal well bores that are arranged in a radial pattern in view of the teachings of Gardes. The motivation for this combination is that the principle well bore could be maintained live while one or more of the radial or multilateral wells were being drilled or completed so as to maintain the well live and yet protect the surrounding formation.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ingle et al (6,591,903) also teaches the method of using a radial pattern for the plurality of horizontal well bores.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan A. Fuller whose telephone number is (571) 272-8119. The examiner can normally be reached on M - Th 7:30 - 5:00 and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian E. Glessner can be reached on (571) 272-6843. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Brian E. Glessner
Supervisory Patent Examiner
Art Unit 3676

baf